

AUTOCLAVED AERATED CONCRETE

AD / 525 Precision Blocks

DESCRIPTION

AD/525 Precision Blocks are manufactured in accordance with EN 771-4 / SANS 50771-4 under the stringent classification, category I masonry units.

AD/525 Precision Blocks are masonry building blocks formulated from cement, lime, silica sand, gypsum and aluminium. The slurry is cast into moulds and is transported into a green state curing section, where a chemical reaction takes place for aeration. This process gives the Autoclaved Aerated Concrete its light weight characteristics. The "Cake" is then wire cut and steam cured under pressure in an autoclave, providing enhanced strength characteristics. Once the autoclaving process is complete the AAC blocks are ready for installation.

TYPICAL APPLICATION

AD/525 Precision Blocks are predominantly used for non-load-bearing internal and external walls. The exterior surface requires cement plaster for protection against the elements. Internal walls can be rendered using either cement plaster or gypsum plaster.

DIMENSIONS

Length	600mm (± 3mm)
Height	250mm (± 2mm)
Width	100, 150, 200mm (± 2mm)

DENSITIES

Dry Density Avg	525 kg/m ³
Delivered Density (14%)	600 kg/m ³
Saturated Density (30%)	680 kg/m ³
Tolerance ± 25kg/m ³	

****NOTE**** Delivered Density refers to blocks ready for shipment. Saturated Density refers to blocks completely saturated with water i.e Rain. Blocks must not be built with when saturated with water.

STRUCTURAL PROPERTIES

Compressive Strength	avg. ≥ 3.5 N/mm ²
Shrinkage	0.1mm/m - 0.2 mm/m

THERMAL PROPERTIES

Thermal Conductivity	0.132 W/mK
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****NOTE**** calculations based on walls without render.
ASTM C518

THERMAL RESISTANCE (R-Value)	
100mm thick	0.758 m ² K/W
150mm thick	1.136 m ² K/W
200mm thick	1.515 m ² K/W

****NOTE**** calculations based on walls without render.
ASTM C518

THERMAL TRANSMITTANCE (U-VALUE)	
100mm thick	1.319 W/m ² K
150mm thick	0.880 W/m ² K
200mm thick	0.660 W/m ² K

****NOTE**** Thermal performance does not take into account the effects of services and and potential thermal bridge areas eg. concrete or brick walls, walls with soffits and movement joints. The Engineer or Architect must ensure that the correct materials are specified and used at these junction areas in order to maintain the thermal ratings.

Fire resistance of non-bearing wall	
100mm thick	4 Hours

****NOTE**** Fire Resistance Test was carried out in accordance with ASTM E119 and classified in accordance with EN 13501-1. Fire ratings are based on walls without services. Therefore fire ratings are equal to the remaining thickness of the wall after installation of services. At junction areas such as movement joints, control joints and at soffits, engineers and architects must ensure the correct materials are used at these junction areas in order to maintain the fire rating.

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SOUND RESISTANCE VALUES

Without Render	
100mm thick	33.7 Rw (dB)
150mm thick	39.4 Rw (dB)
200mm thick	43.4 Rw (dB)
10mm thick 1:6 plaster both sides	
100mm thick	41.4 Rw (dB)
150mm thick	44.9 Rw (dB)
200mm thick	47.8 Rw (dB)

****NOTE**** Acoustic ratings do not take into account the effect of services including junction areas such as with concrete or brick walls, soffits and movement joints. Engineers and architects must ensure the correct materials are used at these junction areas in order to maintain the acoustic ratings.

WEIGHT PER BLOCK

Thickness	Dry	Delivered	Saturated
100mm	7.87 kg	9.00 kg	10.20 kg
150mm	11.81 kg	13.50 kg	15.30 kg
200mm	15.75 kg	18.00 kg	20.40 kg

****NOTE**** Delivered density refers to blocks ready for shipment. Saturated Density refers to blocks completely saturated with water i.e Rain. Blocks must not be built with when saturated with water.

BLOCKS PER M²

100, 150, 200 mm thick	6.666m ²
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****NOTE**** Above refers to blocks per m² without mortar joints. 6.553 blocks per m² with the inclusion of 3mm thick mortar joints.

WEIGHT PER M²

Thickness	Dry	Delivered	Saturated
100mm	52.46 kg	60.00 kg	68.00 kg
150mm	78.72 kg	90.00 kg	101.98 kg
200mm	104.98 kg	119.98 kg	135.98 kg

****NOTE**** Above weights refer to blocks per m² without mortar joints.

CURING TIME

Autoclaved Aerated Concrete Blocks are steam cured at 190°C for 12 hours between 10-12 Bar pressure. Therefore AAC blocks are ready for use directly after autoclaving.

LIGHT DUTY FIXINGS

Rawlplug - Pull out test results		
Product	kN (avg)	Anchor Spec
R-FIX	TBC	6 x 30mm
R-FIX	TBC	8 x 40mm
R-FIX	TBC	10 x 50mm
UNO	TBC	5 x 24mm
UNO	TBC	6 x 28mm
UNO	1.15	8 x 32mm
UNO	1.35	10 x 36mm
4ALL	TBC	5 x 25mm
4ALL	0.50	6 x 30mm
4ALL	TBC	6 x 50mm
4ALL	TBC	8 x 40mm

****NOTE**** It is recommended to apply a safety factor of 2.5 to all pull out test results. Light duty fixings refers to items such as light shelving and cabinets, fittings, towel rails, toilet roll holders, mirrors, pictures, skirtings etc.

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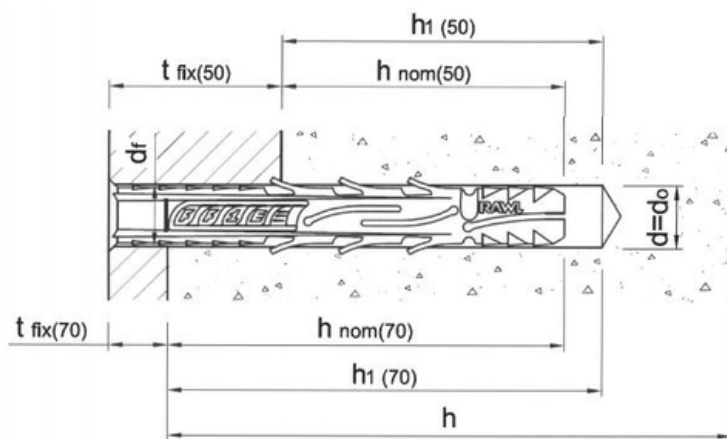
MEDIUM DUTY WALL FIXINGS

Rawlplug - Pull out test results		
Product	kN (avg)	Anchor Spec
R-FF1	4.55	8 x 100mm
R-FF1	3.60	10 x 80mm
R-WHO	2.77	10 x 100mm

****NOTE**** It is recommended to apply a safety factor of 2.5 to all pull out test results. Medium duty fixings refers to items such as shelving, kitchen cabinets, floating vanities, window frames, door frames, facades, handrails etc.

Rawlplug - Shear test results		
Product	kN (avg)	Anchor Spec
R-FF1-N-10	1.80	10 x 120mm

****NOTE**** It is recommended to apply a safety factor of 1.5 to all shear test results.



****NOTE**** FF1 Anchor system: - The innovative design of the expansion zones enables fixture into AAC blocks with embedment of only 70mm. The FF1 has the flexibility that allows you to define the fixing elements thickness (tfix) value, by adjusting the overall length of your anchor. Example FF1 10x100 has a maximum tfix = 30mm and FF1 10x140 has a maximum tfix = 70mm

HEAVY DUTY WALL FIXINGS

Rawlplug - Pull out test results		
Product	kN (avg)	Anchor Spec
KF2	5.22	10 x 80mm
R-KEM II	5.20	10 x 80mm
R-KEM II	6.32	12 x 100mm

****NOTE**** It is recommended to apply a safety factor of 2.5 to all pull out test results. Heavy duty fixings refers to items such as heavy shelving, kitchen cabinets, floating vanities, window frames, door frames, facades, handrails, fire hose reels, industrial cable trays, canopies etc.

CONFORMITY

Blocks are manufactured in accordance with EN 771-4 / SANS 50771-4 standard.

Blocks can only be laid using Aertec supplied Thin Bed Mortar which has been specifically designed for the use with Aertec supplied AAC blocks. See Thin Bed Mortar data sheet for more information.